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**MIDWINTER RECONNAISSANCE OF THE
HERPETOFAUNA OF THE CAPE REGION
OF BAJA CALIFORNIA, MEXICO ¹**

By

Alan E. Leviton ²

California Academy of Sciences, San Francisco
and

Division of Systematic Biology, Stanford University, California

and

Benjamin H. Banta ²

California Academy of Sciences, San Francisco

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INTRODUCTION

Historically, the Cape Region of Baja California has been visited and its herpetofauna sampled during the spring and summer months. Unfortunately, few have collected there during the midwinter, in this, one of the few semi-arid areas in North America where climatic conditions during that period are mild, and amphibians and reptiles are active during the entire year.

Among those who had the opportunity to collect during the winter months are: John Xantus, an observer for the U. S. Coast Survey stationed in La Paz; Lyman Belding, who visited La Paz in the winter of 1881-82 and 1882-83; Gustav Eisen, who landed at San Jose del Cabo in September, 1893, and stayed in the Cape Region through October of that year and then revisited the region again between September and November, 1894; and Goldman and Nelson, who were there in December, 1905, and January, 1906. Of these, only Eisen and Belding collected any substantial numbers of reptiles. Most of these animals were taken during the months of October and November of 1894, and were reported on by Van Denburgh (1895a, 1885b); or were captured in February, 1882, and were reported on by Yarrow (1882).

In early December of 1958 the senior author, in company with Mr. Hugh B. Leech of the Academy's entomological staff, and under the auspices of the California Academy of Sciences and the Belvedere Scientific Fund, drove the length of Peninsular Baja California in a vehicle especially equipped for the purpose. In La Paz they were joined by several other scientists for a two-month reconnaissance of the biota of the Cape Region (Wiggins, 1960, p. 2-8). The other workers on the expedition were: Dr. Ira L. Wiggins and Mr. Duncan Porter, botanists from Stanford University; Mr. Allyn G. Smith, malacologist from the California Academy of Sciences; and Dr. Reid Moran, botanist from the San Diego Natural History Museum. Mr. Kenneth K. Bechtel, President of the Belvedere Scientific Fund, spent some days in the field with the group and provided additional transportation to enable them to visit a number of otherwise inaccessible outlying areas of interest.

A base of operations was established in La Paz and trips were made from that point. At least two complete circuits of the Cape were made and numerous shorter trips were undertaken. At no time did the group get into the mountains except at the Boca de la Sierra, which lies at an altitude of 1000 feet; rather, all work was done in the lowlands from the coasts to the base of the *massif central* of the Cape Region, the Sierra de la Victoria. Frequent stops allowed each of the party an opportunity to collect and to study the prevailing ambient conditions and their effects on the organisms of his particular interest. The stops of particular importance to the herpetological work are given in table I.



FIGURE 1. Map of Cape Region, Baja California Sur, Mexico (taken from Mexico Air Navigation Map, La Paz section, Geographic Branch, Military Intelligence Division, U.S.A., 1936, map number 3507-60 12-S and San Jose del Cabo section NF 12-North).

GENERAL GEOGRAPHY

The Cape region of Baja California, as defined here, is that region of the Peninsula south and southeast of a line extending from La Paz to Todos Santos (figure 1). While typical elements of the fauna and flora of the Cape region extend somewhat north of this line, into the Magdalena Plain and southern fringe of the Sierra Giganta, the Cape nevertheless forms a logical geographical unit. Within the Cape there is a *massif central*, the Sierra de la Victoria, an old granitic mass, attaining a maximum elevation of about 6,300 feet.

TABLE 1. *Herpetological collecting stations in the Cape Region, Baja California, Mexico, December, 1958 - January, 1959.*

STATION	DATE	LOCALITY
1	11 Dec.	7 miles N. of El Arco, along main road.
2	17 Dec.	La Palmilla, 5 miles SSW. of San Jose del Cabo.
3	"	Las Cruces.
4	19 Dec.	18.5 miles from junction of Los Planos road and La Paz airport road, 21 miles ESE. of La Paz.
5	20 Dec.	La Ventana.
6	"	8.8 miles by road from Los Planos, at junction of Bahía de los Muertos-Punta Arena de la Ventana roads.
7	"	Bahía de los Muertos.
8	21 Dec.	7.3 miles WNW. of Los Planos, along road to La Paz.
9	"	La Paz.
10	23 Dec.	4 miles E. of La Paz, along road to Las Cruces.
11	"	8.8 miles E. of La Paz, along road to Las Cruces.
12	"	9 miles E. of La Paz, along road to Las Cruces.
13	"	12.4 miles E. of La Paz, along road to Las Cruces.
14	24 Dec.	39.5 miles S. of La Paz, along road to Todos Santos.
15	"	36.4 miles S. of La Paz, along road to Todos Santos.
16	25 Dec.	2.8 miles SSE. of Todos Santos.
17	"	Punta Lobos.
18	26 Dec.	6.4 miles N. of Todos Santos, along road to La Paz.
19	"	15.1 miles N. of Todos Santos, along road to La Paz.
20	"	17.5 miles N. of Todos Santos, along road to La Paz (fig. 2).
21	"	21.6 miles N. of Todos Santos, along road to La Paz.
22	"	23.9 miles S. of La Paz, along road to Todos Santos.
23	27 Dec.	Arroyo de la Purissima, approximately 1 kilometer N. of La Purissima.
24	29 Dec.	9.4 miles N. of La Paz, along road to Bahía Pichilínque.
25	"	12.5 miles N. of La Paz, 0.9 miles from Bahía Pichilínque.
26	"	10.8 miles N. of La Paz, along road to Bahía Pichilínque.
27	"	10.2 miles N. of La Paz, along road to Bahía Pichilínque.
28	30 Dec.	El Coyote Beach, 16.4 miles NNE. of La Paz (fig. 3).
29	"	Santa Victoria Ranch, 11.2 miles NNE. of La Paz.
30	"	5.8 miles NNE. of La Paz, along road to El Coyote.
31	31 Dec.	Rodreguiz Ranch, 19.2 miles WNW. of La Paz (fig. 4 & 5).
32	"	10.3 miles WNW. of La Paz, along main road; 9.6 miles N. of Los Aripes.
33	1 Jan.	1.6 miles E. of Cabo San Lucas.
34	"	3.4 miles NE. of Cabo San Lucas.
35	"	7.7 Miles NE. of Cabo San Lucas.

TABLE 1. (CONTINUED)

STATION	DATE	LOCALITY
36	1 Jan.	11.0 miles NE. of Cabo San Lucas.
37	3 Jan.	13.1 miles WNW. of La Paz (3.5 miles N. of Los Aripes, along road to Rodreguiz Ranch).
38	"	10.2 miles WNW. of La Paz (0.6 miles N. of Los Aripes, along road to Rodreguiz Ranch).
39	4 Jan.	12.9 miles E. of La Paz, along road to Las Cruces (Arroyo de los Pozos) (fig. 6).
40	"	15.6 miles E. of La Paz, along road to Las Cruces.
41	6 Jan.	24.9 miles SE. of La Paz, along road to San Antonio.
42	"	0.2 miles S. of Buenavista (Gulf side)
43	6-7 Jan.	0.7 miles N. of Miraflores.
44	7 Jan.	0.2 miles SSE. of San Jose del Cabo, on road to La Playa (fig. 7).
45	"	1.3 miles N. of San Jose Viejo.
46	8 Jan.	7.0 miles N. of Santa Anita.
47	"	0.6 miles S. of Miraflores.
48	"	1.1 miles SE. of San Bartolo.
49	9 Jan.	1.5 miles NW. of San Bartolo.
50	"	12.1 miles NW. of San Bartolo.
51	11 Jan.	6.0 miles No. of La Paz, along road to Bahía Pichilinque.
52	13 Jan.	5.3 miles NW. of Todos Santos, along road to La Pastura.
53	"	4.6 miles NW. of Todos Santos, along road to La Pastura.
54	"	2.8 miles NW. of Todos Santos, along road to La Pastura.
55	"	Todos Santos.
56	14 Jan.	San Pedro (or Pedrito) Bay, 3.9 miles SE of Todos Santos.
57	15 Jan.	4.9 miles SE. of Pescadero.
58	"	6.6 miles S. of Pescadero.
59	"	9.5 miles S. of Pescadero.
60	"	5.9 miles SE of Migrino (Arroyo Candelaria).
61	16 Jan.	0.5 miles E. of school in Cabo San Lucas.
62	"	2.3 miles N. of Cabo San Lucas, along road to Todos Santos.
63	"	2.4 miles N. of Cabo San Lucas, along road to Todos Santos (fig. 8).
64	"	Los Pozos, 11 miles N. of Cabo San Lucas.
65	"	0.9 miles S. of Cabo San Lucas, on hill behind cannery.
66	17 Jan.	1.3 miles ENE. of Cabo San Lucas.
67	"	0.3 miles SW. of Cabo San Lucas (fig. 9).
68	"	5.4 miles ENE. of Cabo San Lucas, along road to San Jose del Cabo.
69	18 Jan.	18 miles ENE. of Cabo San Lucas, along road to San Jose del Cabo.
70	19 Jan.	Boca de la Sierra (fig. 10).
71	"	1.6 - 2.6 miles ESE. of Boca de la Sierra, along road leading to main road (La Paz - San Jose del Cabo road).

TABLE 1. (CONTINUED)

STATION	DATE	LOCALITY
72	20 Jan.	San Bartolo Arroyo, 1.3 miles SE. of San Bartolo.
73	20-21 Jan.	1.3 miles N. of El Triunpho.
74	21 Jan.	8.3 miles N. of El Triunpho.
75	23 Jan.	1.5 miles W. of El Saltilo Ranch, above waterfall in El Saltilo Arroyo, 19.5 miles E. of La Paz (fig. 11).

Surrounding this central highland is a broad sandy lowland dissected by numerous arroyos.

Geologically, the Cape Region highland is old, perhaps Jurassic, at least Cretaceous, in age. The surrounding lowlands have been subject to more recent marine transgressions. The general geology of the area has been reviewed by Beal (1948).

GENERAL ENVIRONMENT

The climate of the Cape Region of Baja California Sur can be categorized as arid subtropical. The average diurnal temperature in the winter is about 20° C., the extremes range from 9° C. to 30° C. The temperature variation is somewhat less than in desert areas of the southwestern United States. That the general climate of southern Baja California is not subject to the extreme temperature variation common to areas on the mainland or to the north, is chiefly because of the so-called maritime effect of the Pacific Ocean on its western and southern borders and of the Gulf of California to the east.

With specific reference to temperature, incidental observations were made of air and ground temperatures during December and January of 1958-1959. In table II the data are summarized. These data are of interest for they show clearly that while air temperature is low, ground temperature may be high enough to provide a source of radiant heat to warm ground dwelling animals, even relatively early in the morning.

Precipitation during the winter months is scanty. Three days in the latter part of December, 1958, there was a light mist-like rainfall, but otherwise it was dry. A few incidental relative humidity readings, taken during December and January, are summarized in table III; they show that the relative humidity tends to be low. However, enough rain fell during the three days just mentioned to form small puddles in the arroyos to provide breeding ponds for frogs and toads. During the early autumn, rain is frequently abundant for a few days and the streams may flow freely. Much water sinks into the loosely compacted sandy channels of the arroyos and may be found close to the surface during the winter months. In one or two places water was found actually flowing in the arroyos, particularly at the Boca de la Sierra. Except in the irrigation ditches

at Todos Santos and San Jose del Cabo, a little water was found issuing from small springs at the Arroyo El Saltito and in the Arroyo San Bartolo.

TABLE II. *Irregular observations on air and ground temperatures during December and January, 1958 - 1959.*

DATE	TIME ⁴	AIR TEMPERATURE IN DEGREES C.	GROUND TEMPERATURE IN DEGREES C.
Dec. 19	Noon	24.0	.....
Dec. 20	8:00	(Cool)	20.5
	Noon	26.3	31.5
	3:00	27.8	37.0
Dec. 21	Noon	27.0	40.0
Dec. 23	10:45	25.3	29.0
	2:30	21.7	27.0
	3:00	22.2	.....
Dec. 24	2:00	21.7	24.5
Dec. 25	2:00	24.1	.....
	4:45	24.4	.....
Dec. 26	10:45	27.2	.....
	Noon	27.8	35.0
	3:30	29.4	.....
	2:30	29.4	.....
Dec. 29	10:30	26.7	.....
	Noon	27.8	.....
	2:00	26.7	.....
	3:30	26.7	.....
Dec. 30	11:00	24.4	31.0
	2:00	24.5	38.5
	5:15	17.0	.....
Dec. 31	10:45	24.8	35.0
Jan. 1	9:55	27.8	32.0
	Noon	28.3	38.0
	? 3:00	23.3	36.0
Jan. 3	10:45	.....	34.0
	11:30	27.8	.....
Jan. 4	Noon	25.0	31.5
	2:45	26.7	.....
Jan. 6	11:00	26.1	28.9
	2:30	25.6	.....
Jan. 7	4:00	26.1	.....
Jan. 8	12:15	29.4	.....
	4:15	.....	28.9
Jan. 9	9:00	22.2	23.0
	9:45	24.1	33.0
Jan. 13	1:45	28.3	40.5
Jan. 15	12:45	26.7	40.5
Jan. 17	Noon	27.8	.....

⁴) P. M. hours indicated by bold face type.

TABLE III. *Irregular observations on relative humidity and barometric pressure taken in La Paz, Baja California Sur, Mexico, December, 1958 - January, 1959.*

DATE	TIME ⁵	HUMIDITY%	TEMPERATURE °C	BAROMETER IN INCHES HG
Dec. 27	6:00	63	21.7	29.50
Dec. 28	Noon	63	23.3	29.51
	4:00	66	24.4	.....
	8:00	78	20.6	29.53
Dec. 29	8:00	75	20.0	29.58
	4:00	47	22.2	29.51
	8:00	59	20.0	29.56
Dec. 30	8:00	52	19.4	29.58
	4:00	47	17.2	29.52
Dec. 31	8:00	49	17.2	29.50
	4:00	45	20.6	29.42
Jan. 1	8:00	59	18.9	.....
Jan. 2	8:00	57	13.9	29.53
	Noon	58	22.8	20.45
	4:00	53	22.2	29.35
Jan. 3	8:00	82	16.2	29.49
	Noon	49	22.2	29.45
Jan. 4	8:00	65	21.1	29.42
	8:00	80	19.4	29.52

5) P. M. hours indicated by bold face type.

GENERAL HERPETOLOGICAL OBSERVATIONS

A broad cross section of the amphibians and reptiles known to inhabit the lowlands of the Cape Region was obtained during the winter months. More juveniles than adults were collected. This is particularly true for species of *Cnemidophorus*, *Phrynosoma*, *Callisaurus*, *Uta*, and *Masticophis*, but not for *Sceloporus*, *Ctenosaura*, *Phyllodactylus*, *Salvadora*, *Hypsigena*, *Chilomeniscus*, or *Petrosaurus*. The specimens of *Sauromalus*, *Dipsosaurus*, *Phyllorhynchus*, and *Eridiphas* were found under logs, rocks or in crevices in rocks and were not active.

The earliest daily appearance of lizards was between 9:30 and 10:00 A. M. By this time ground temperature often reached 30° C. or above while air temperatures ranged from 24° to 26° C. *Sceloporus*, *Uta*, and *Petrosaurus* were most abundantly represented. Later in the day other animals appeared, usually in early afternoon, including young individuals of *Cnemidophorus*, *Phrynosoma*, and *Callisaurus*, and large specimens of *Ctenosaura*. Examples of *Hypsigena* were found active under cover at mid-morning, and of *Chilomeniscus* in late afternoon. By 4 P. M., as sunset approached and air temperature and

ground temperature began to drop most lizards disappeared. Only those belonging to the genus *Sceloporus* remained and some of these continued to bask on rocks until dusk (4:45 P.M.).

Based on the observations recorded above it seems likely that the animals received much heat from ground radiation rather than from the direct exposure to the incident rays of the sun. The smaller body mass of young animals allowed them to warm faster than the large adult animals of the same species, which accounts for the early appearance of the young. However, few juveniles were taken in the late afternoon, while adults of *Sceloporus* and *Ctenosaura* were found active. Because of the smaller body mass compared to surface area in smaller individuals, body heat is radiated more rapidly than in adults and these younger animals are thus limited to morning and early afternoon activity during the winter months.

In the course of the two winter months spent in the Cape Region, 345 animals were collected. These are reported on below; within the major systematic groupings the species are arranged alphabetically by genus.



FIGURE 2. Station 20, approximately 15.1 miles north of Todos Santos, illustrating the effects of three days of light misty-rain on the roads. *Coleonyx variegatus* was found in this general environment hidden beneath rocks or fallen cacti debris.

ACCOUNT OF SPECIES

AMPHIBIA

Bufo punctatus Baird and Girard.

MATERIAL COLLECTED (22). Station 7 (CAS 91242); Station 14 (CAS 91259); Station 20 (CAS 91271); Station 39 (CAS 91332-91334); Station 73 (CAS 91473-91475); Station 74 (CAS 91488); Station 75 (CAS 91492-91496).

REMARKS. Of the 22 specimens collected, 13 were found active on or around sand and rocks in wet arroyos, especially at the Arroyo de los Pozos, about 13 miles east of La Paz, in early January; 2 were taken under dead cardon trees, and 5 were found burrowed into the sandy banks of El Saltito Arroyo below the waterfall. Two other individuals were discovered within the soft, moist decaying pulp of a dead cardon log.

There are no previous records for this species for the winter months from the Cape Region though Van Denburgh (1895b, p. 560) notes specimens taken as late as October, in 1890. Van Denburgh and Slevin (1921, p. 54) state that the species was very common in the vicinity of San Antonio where they were heard calling late into the evening in the spring.

Hyla regilla Baird and Girard.

MATERIAL COLLECTED (4 adults and 2 lots of tadpoles). Station 23 (CAS 91277); Station 70 (CAS 91462); Station 72 (CAS 91468, tadpoles); Station 73 (CAS 91470, tadpoles; CAS 91471-91472, adults).

REMARKS. Previously reported from the Cape Region by Yarrow (1882, p. 171), Van Denburgh (1895b, p. 557) and Van Denburgh and Slevin (1921, p. 54) this species seems to be present wherever there is a supply of relatively permanent water. The 4 adults collected were found in the vegetation (grass and reeds) near streams and pools. Two specimens were seen under dead palm fronds alongside an irrigation ditch at Todos Santos (January 13) but escaped. Tadpoles were taken on two occasions, at San Batolo and at El Triunpho in late January.

REPTILIA

AMPHISBAENIDS

Bipes biporus Cope.

MATERIAL COLLECTED (1). Station 31 (Stanford University 21907).

REMARKS. A living specimen of this singular burrowing amphisbaenid lizard was obtained from underneath a dead cardon cactus, in slightly damp sand on the leeward side of the coastal sand dunes at Rodreguez Ranch, 19 miles northwest of La Paz. The animal was pink in life. It had no pattern and



FIGURE 3. Station 28, El Coyote Beach, about 16 miles north-northeast of La Paz. The sand dunes were inhabited by *Callisaurus* and *Uta*. This is a fairly typical beach-sand dune environment along the east coast of the Cape region.

no melanophores were evident. When first observed it was burrowing vertically into the sand. The animal was kept alive for several days in a large pot with a shallow bed of sand. Under these conditions it burrowed into the sand by a "swimming motion" in which the head was moved from side to side, and forward, and the two front feet were actively moving a "sweeping movement," apparently pushing sand backward as the animal progressed forward.

In February of 1882 Belding obtained twelve specimens which formed the type series Cope had before him when he described the species.

LIZARDS

Callisaurus draconoides draconoides Blainville.

MATERIAL COLLECTED (43). Station 2 (CAS 91209-91215); Station 7 (CAS 91227-91240); Station 8 (CAS 91245); Station 10 (CAS 91248); Station 28 (CAS 91299-91301); Station 31 (CAS 91308-91310); Station 33 (CAS 91321); Station 37 (CAS 91328); Station 39 (CAS 91366); Station 42 (CAS 91374); Station 53

(CAS 91403-4); Stations 62 and 63 (CAS 91425-91430); Station 64 (CAS 91436); Station 66 (CAS 91441-91444); Station 70 (CAS 91455).

REMARKS. Van Denburgh and Slevin (1921, p. 57) remarked that this lizard in the Cape Region "is a fairly common species, especially near the coast ... Here it was found in the sandy areas back of the beaches... In the interior it frequented the hot sandy bottoms of the canyons and adjacent arroyos." Of the 43 specimens collected in 1958-1959, 41 were found active on the ground, generally between 11:00 A.M. and 2:30 P.M.; only 2 were found under cover of a log. All individuals were taken in sandy areas, either along beach dunes or in sandy arroyos.



FIGURE 4. Station 31, Rodriguiz Ranch, approximately 19 miles west-northwest of La Paz, leeward side of coastal dune. Arrow points to fallen cardon log (see figure 4) beneath which *Bipes biporus* was found.

Cnemidophorus hyperythrus hyperythrus Cope

MATERIAL COLLECTED (35). Station 2 (CAS 91216); Station 4 (CAS 91219-91221); Station 5 (CAS 91223); Station 6 (CAS 91225); Station 21 (CAS 91272-91274); Station 28 (CAS 91295-91298); Station 31 (CAS 91313); Station 34 (CAS

91418); Station 38 (CAS 91330); Station 45 (CAS 91379); Station 52 (CAS 91399); Station 62-63 (CAS 91424, 91431-35); Station 69 (CAS 91450-53); Station 74 (CAS 91479-91485); Station 75 (CAS 91499).

REMARKS. A very abundant animal in the Cape Region during the winter months; all but 3 individuals were observed on the ground. Most of the specimens collected were taken early in the afternoon though a few were obtained late in the morning.

Cnemidophorus tigris rubidus Cope.

MATERIAL EXAMINED (1). Station 6 (CAS 91224).

REMARKS. The single specimen of this species collected during the winter was a young adult taken just before 10:00 A.M. At this time the air temperature was about 25° C. Though no record of ground temperature was made, it must have been about 30° C. Within two hours, by noon time, ground temperature had reached 31.5° C., air temperature, 26.5° C.

Coleonyx variegatus peninsularis Klauber.

MATERIAL COLLECTED (5). Station 14 (CAS 91257); Station 15 (CAS 91260); Station 16 (CAS 91261); Station 18 (CAS 91265); Station 20 (CAS 91267).

REMARKS. Klauber (1945) based his name for this population on three specimens, one each from the vicinity of La Paz, San Jose del Cabo, and along the trail between Loreto and Comondu. We find that our specimens agree closely with Klauber's description.

These 6 specimens were found beneath rocks or wood; the soil was composed of a very fine sandy loam.

TABLE IV. *Counts and measurements (in mm.) for specimens of Coleonyx variegatus peninsularis.*

NUMBER	SEX	SNOUT-VENT LENGTH	BODY	TAIL	GULARS TOUCHING MENTALS	SPOTS IN BETWEEN BANDS
CAS 91257	male	43	6 ⁽⁶⁾	8	5	none
CAS 91260	female	49	5	3 ⁽⁷⁾	6	none
CAS 91261	male	39	5	4 ⁽⁸⁾	6	none
CAS 91265	juv.	30	5	3 ⁽⁷⁾	7	none
CAS 91267		42	5	-	7	none

6) Fourth and fifth bands joined.

7) Tail largely regenerated.

8) Tail broken.



FIGURE 5. Same as figure 3, but showing exposed ground and underside of carbon log beneath which a specimen *Bipes biporus* was found. Arrow (lower center) points to small hole in ground into which the animal was burrowing when discovered.

Ctenosaura hemilopha Cope

MATERIAL COLLECTED (2). Station 43 (CAS 91375); Station 49 (CAS 91391).

REMARKS. Three specimens of this large lizard were collected (one was sent to the Secretaria de Agricultura, Mexico, D. F., before the writing of this report), though many others were seen. Of the three collected, one was taken on the ground, one on a large boulder, and one on the trunk of a tree. Others were seen clinging on the vertical granitic walls of the Arroyo San Bartolo as early as 9:00 A. M. (air temperature 21° C.; ground temperature, 23° C.) as well as in an area of large boulders between San Lucas and Todos Santos. It seems quite remarkable that so massive a beast as this could venture forth so early in the day.

Dipsosaurus dorsalis lucasensis Van Denburgh.

MATERIAL COLLECTED (1). Station 71 (CAS 91467).

REMARKS. A single juvenile was found under a small rock late in the

afternoon. It was not active. At the same time adult specimens of *Sceloporus orcutti licki* were collected on rocks where they were basking just before dusk. No desert iguanas were seen active on the ground during the entire trip. Though Van Denburgh and Slevin (1921, p. 56), and Murray (1955, p. 35) emphasize the occurrence of this species in sandy terrain, particularly near the coast, our specimen was taken in an area of silt with scattered granitic rocks and boulders, a good distance from the coast.

Petrosaurus thalassinus thalassinus Cope.

MATERIAL COLLECTED (2). Station 49 (CAS 91390); Station 63 (CAS 91428).

REMARKS. Both specimens collected were taken in the morning. CAS 91390, collected at 9:00 A.M. was found basking on the walls of San Bartolo arroyo along with half-grown individuals of *Ctenosaura*. The air temperature at that time was 21° C., the rock surface 23° C.

Though only two specimens were captured, these animals were more abundant. Several were seen in the San Bartolo Arroyo, but they were very shy and escaped into crevices in the rocks as one approached.

Linsdale (1932, p. 359) reports that the altitudinal range for this species is 800 to 5700 feet. The site of Station 63 could not have been more than 200 feet above sea level, though no accurate measurements were taken; we suspect that the animal may even come down to sea level in those places where appropriate habitats are to be found.

Phrynosoma coronatum coronatum Blainville.

MATERIAL COLLECTED (3). Station 45 (CAS 91378); Station 67 (CAS 91448); Station 74 (CAS 91486).

REMARKS. The three specimens collected were juveniles. They were all collected during the early afternoon, on days when the air temperature reached 26° to 28° C., and ground temperatures between 35° and 40° C. According to Yarrow (1882b, p. 66) Belding collected three specimens at La Paz in February, 1882, and Van Denburgh (1895a, p. 118) noted that this lizard had been taken as late as November, in 1893, in the Cape Region.

In the three specimens at hand, ventral spotting is widespread. There are three pair of dark dorsal blotches, each blotch bordered behind by white. The cephalic spines number 5+1+5; they are not curved. The dorsal scales are strongly spinose.

Phyllodactylus unctus Cope.

MATERIAL EXAMINED (34). Station 13 (CAS 91256); Station 14 (CAS 91258); Station 16 (CAS 91262); Station 17 (CAS 91264); Station 36 (CAS

91322); Station 39 (CAS 91342-91355); Station 40 (CAS 91370-91371); Station 50 (CAS 91395); Station 51 (CAS 91396-91398); Station 54 (CAS 91411); Station 51 (CAS 91400); Station 56 (CAS 91406-91407); Station 58 (CAS 91412); Station 65 (CAS 91439); Station 67 (CAS 91447); Station 75 (CAS 91497-91498).

REMARKS. This species was the most common gecko obtained during the winter period. Of the 34 specimens collected, 15 were found under exfoliating slabs of granite, 14 were taken from under rocks, 3 were on the rocks, and 2 were found in or under decaying carbon logs. All were active at mid-day and all made strenuous efforts to escape capture. Previous midwinter records for this species include those of Van Denburgh (1895a, p. 88), who recorded 9 specimens obtained by Gustav Eisen at San Jose del Cabo in January, 1893, and Yarrow (1882, p. 73) who reported on Belding's specimens from La Paz, taken in February, 1882.

One specimen, obtained under a rock at Station 36, was placed in a cloth bag with an adult night snake, *Hypsiglena ochrorhyncha*; it later had to be removed from the snake's stomach.



FIGURE 6. Station 39, Arroyo de Los Pozos, about 13 miles east of La Paz. Water was present immediately beneath the surface. Some can be seen in small pockets on the left. Young *Bufo punctatus* were especially abundant. On the low hills in the background, *Phyllodactylus unctus* was found in abundance under exfoliating slabs of granitic rock.



FIGURE 7. Station 44, 0.2 miles south-southeast of San Jose del Cabo. Irrigation ditch supplying water to fields. *Hyla regilla* may be found on occasion in or alongside these ditches.

Phyllodactylus xanti xanti Cope.

MATERIAL COLLECTED (5). Station 31 (CAS 91311); Station 62 (CAS 91423); Station 63 (CAS 91426-91427); Station 70 (CAS 91460).

REMARKS. Recently Dixon (1960) showed that the name *P. tuberculatus* by which this form has been known for years, must be applied to another population of *Phyllodactylus* entirely. He reinstated Cope's old name *P. xanti* for the Cape Region population, the type locality of which is the "vicinity of Cabo San Lucas." Of the 5 specimens obtained, 4 were found under rocks, 1, under a carbon log. Belding obtained 1 specimen at La Paz in February.

Sauromalus australis Shaw.

MATERIAL COLLECTED (2). Station 39 (CAS 91368-91369).

REMARKS. The two young specimens collected were found squeezed into a fracture crevice in a very large boulder. Specimens of *Phyllodactylus unctus* were taken from under exfoliating slabs on the same boulder. No chuck-

wallas were observed to be active during this winter period. In February of 1882, Belding also obtained a specimen of this species in the vicinity of La Paz, but there is no indication in Yarrow's note (1882, p. 51) whether the animal was active or not.

Ventral counts for these two specimens are 124 and 157, the former being considerably lower than that indicated by Shaw (1945) for the six specimens forming the type series which he had before him (151-186, mean 163.5).

Sceloporus magister zosteromus Cope.

MATERIAL COLLECTED (None). Record based on one field observation late in the afternoon of December 31, 1958, 8 miles northwest of La Paz. A single large individual was flushed out of some low bushes bordering a shallow, silty water course. The animal, an adult male, darted rapidly from under one bush into another and could not be found.

Sceloporus orcutti licki Van Denburgh.

MATERIAL COLLECTED (22). Station 3 (CAS 91218); Station 4 (CAS 91222); Station 13 (CAS 91255); Station 35 (CAS 91319-91320); Station 39 (CAS 91367); Station 48 (CAS 91383-91387); Station 49 (CAS 91389); Station 67 (CAS 91445-91446); Station 70 (CAS 91457-91458); Station 71 (CAS 91463-91466); Station 73 (CAS 91476); Station 74 (CAS 91487).

REMARKS. Van Denburgh and Slevin (1921, p. 61) and Murray (1955, p. 37) state that these animals are usually to be seen on boulders, though Murray states the case a little too strongly when he says, "invariably...on boulders." Of the 22 specimens collected 15 were taken off of rocks or boulders or were observed running about on the sides of large granitic outcroppings; however, 4 were on the ground when collected and not close to any boulders at the time, and 1 was found under a rock.

Remarkably, though this is one of the really common lizards of the Cape Region, it did not show up in the mid-winter collections of Belding, Xantus, or others. It is a very agile beast, however, and the few individuals that may have been about at that time probably darted into cracks and fissures in the rocks before they could be collected.

Urosaurus nigricaudus Cope.

MATERIAL COLLECTED (33). Station 2 (CAS 91217); Station 7 (CAS 91241); Station 9 (CAS 91246, 91324); Station 10 (CAS 91247); Station 12 (CAS 91250); Station 20 (CAS 91269); Station 21 (CAS 9175-91276); Station 30 (CAS 91303); Station 31 (CAS 91312); Station 33 (CAS 91316); Station 34 (CAS 91317); Station 46 (CAS 91381-91382); Station 47 (CAS 91376-7, 91380); Station 49 (CAS 91388); Station 50 (CAS 91392-91393); Station 52 (CAS 91402); Station 57 (CAS

91410); Station 61 (CAS 91420); Station 62 (CAS 91421-91422); Station 64 (CAS 91437); Station 68 (CAS 91449); Station 69 (CAS 91454); Station 70 (CAS 91456); Station 72 (CAS 91469); Station 74 (CAS 91489); Station 75 (CAS 91490-91491).

REMARKS. This species was the most abundant and widely distributed of the several iguanid lizards encountered during the winter months. Of the 33 specimens collected, 19 were found active on the ground, 8 were on rocks, 2 were found inside of decaying cardon logs, 2 were in houses, 1 was on sand, 1, on a log, and 1, on a cactus stump about six feet above the ground. Many additional individuals were seen, mostly on the ground, but were not or could not be collected.

The above observations are in marked contrast to those of Van Denburgh and Slevin (1921, pp. 58-59) and Linsdale (1932, p. 361) who found these animals most frequently off the ground, on low bushes or on stone or wooden fences. Of course, their observations were made during the spring when air and ground temperatures were much higher and the animals might well seek a semi-arboreal habitat to help maintain a lower body temperature by moving away



FIGURE 8. Station 63, about 2.4 miles north of Cabo San Lucas, looking toward the southern most tip of the Cape. Hidden by the undergrowth to the left of the road are some larger granitic boulders. *Phyllodactylus xanti* were taken from beneath exfoliating rock slabs. *Petrosaurus thalassinus* was found here, too.

from the very high ground radiation. Certainly these animals could not have kept warm during the winter months unless on the ground where they could absorb ground radiation, for air temperatures were too low and would have allowed for too rapid a transfer of heat from the animal to the air in an arboreal situation.

Belding collected 10 specimens of this species at La Paz in February of 1882.



FIGURE 9. Station 67, hills immediately south of Cabo San Lucas, overlooking cannery (arrow). *Phyllodactylus xanti*, *Phrynosoma coronatum*, and *Sceloporus orcutti* were found in this environment. This is probably the type locality area of *P. xanti*, said to be in the vicinity of Cabo San Lucas, since it is the only environment in the immediate vicinity of either the present town, or of its earlier location, suitable for that lizard.

Uta stansburiana elegans Yarrow.

MATERIAL COLLECTED (35). Station 6 (CAS 91226); Station 11 (CAS 91249); Station 13 (CAS 91251-91253); Station 16 (CAS 91263); Station 20 (CAS 91268); Station 24 (CAS 91278); Station 25 (CAS 91279-91280); Station 26 (CAS 91281); Station 27 (CAS 91282); Station 28 (CAS 91283-91284); Station 29 (CAS 91302); Station 31 (CAS 91304-91307); Station 32 (CAS 91314-91315); Station 38 (CAS 91331); Station 37 (CAS 91325-91327, 91329); Station 54 (CAS 91405); Station

Station 57 (CAS 91409); Station 59 (CAS 91413-91317); Station 63 (CAS 91429); Station 66 (CAS 91440).

. REMARKS. In 1944, Cowles and Bogert stated that extensive observations on southern California populations of *Uta stansburiana* indicated that these animals will not remain active when the air temperature drops below 26° C., though in the late afternoons when the ground is relatively warm, they continue to be active for a time. In the Cape Region, during the winter months, a few animals were seen active at air temperatures of 24.1° to 24.7° C. At these air temperatures, ground temperature would reach between 28° to 36° C., so if this forms the major source of radiant-heat energy for keeping the animals warm, it comes close to the limits given by Cowles and Bogert of 26°-36° C.

Thirty-five specimens were found; 14 on rocks, 11 on the ground, 4 on sand, 2 under rocks, and 2 under carbon logs. Van Denburgh and Slevin (1921, p. 59) stated that "This lizard, which generally is common in desert areas, was not found so in the Cape Region, and strange to day, was taken only at the sea-coast. None was seen in any of the interior country. All the specimens taken were found in brushy areas back of the beaches." The collections made in the winter of 1958-1959 largely came from coastal areas; indeed, only one



FIGURE 10. Station 70, near the Boca de la Sierra. Permanent water flowing in the Arroyo Miraflores. One specimen of *Natrix valida*, was taken here.

specimen, CAS 91268, was taken in the "interior," 17.5 miles north of Todos Santos.

Belding secured 15 specimens at La Paz in February, 1882.

SNAKES

Chilomeniscus cinctus Cope.

MATERIAL COLLECTED (2). Station 7 (CAS 91244); Station 52 (CAS 91401).

REMARKS. The specimen found at Bahia de los Muertos (Station 7), taken from under a board on the sandy beach, was very active and made strenuous efforts to escape. CAS 91401 was found dead on the ground at 10:40 A.M. in a sandy arroyo just south of La Pastura. It had been dead for only a short time before being picked up. It seemed likely that it was caught out in the open when the sun came up and died as a result of excessive heat, for it was quite warm, though no temperature records were made at the time.

TABLE V. *Counts and measurements for specimens of Chilomeniscus cinctus.*

	CAS 91244	CAS 91401
Sex	male	female
Ventrals	113	118
Subcaudals	27	27
Dorsal body bands	32	28
Tail bands	9	5
Dorsal scale rows	14-13-12	14-13-13

In CAS 91244 there is a wide creamy white interspace, 3 to 4 scale rows in width, between the tenth and eleventh dorsal bands, with dark markings on several scales. CAS 91401 has a conspicuously narrowed head; the dorsal bands become narrower toward mid-body, then widen and become narrower again near the anus.

Chilomeniscus stramineus stramineus Cope.

MATERIAL COLLECTED (2). Station 70 (CAS 91461).

REMARKS. Two specimens were obtained by Belding in the vicinity of La Paz in February, 1882. The solitary specimen obtained during the winter of 1958-1959 was found in a very dry rocky area in the immediate vicinity of a water-filled reservoir which forms the water supply for Miraflores. This specimen, a male, has 106 ventrals and 33 subcaudals. It is 83 mm. in snout-vent length, with a tail of 34 mm. Its color pattern is typical of the subspecies.

Eridiphas slevini (Tanner).

MATERIAL COLLECTED (1). Station 75 (CAS 86093).

REMARKS. Leviton and Tanner (1960) proposed the nominal genus *Eridiphas* to accommodate *Hypsiglena slevini*, a species described by Tanner, in 1946, based on a single young specimen collected some years earlier in the vicinity of Loreto, Baja California Sur, Mexico by J. R. Slevin. They were led to question the generic affinities of that species when they examined a second specimen, an adult female, that was taken in January, 1959, a few miles from La Paz. More recently, a third specimen was turned up on Cerralvo Island (Etheridge, 1961; Soule, 1961), which agrees closely with the material already at hand. Based on available material we find no reason to question the conclusions reached by Leviton and Tanner.

The individual taken in 1959 was found beneath a small rock resting on slightly damp sand alongside a trickle of water above the waterfall in El Salto Arroyo. It was not especially active.

Hypsiglena torquata ochrorhyncha Cope.

MATERIAL COLLECTED (7). Station 12 (CAS 91254); Station 36 (CAS 91323); Station 39 (CAS 91372); Station 56 (CAS 91408); Station 59 (CAS 91418); Station 60 (CAS 91419); Station 65 (CAS 91438).

REMARKS. Of the several specimens collected, four were found beneath rocks or boards (the latter on a sandy beach), one was under a log, one was in a decaying log, and CAS 91408 was found dead on the ground in a dry, rocky area. All localities at which these animals were found are near the coast, and all but one of the specimens collected were active when uncovered.

TABLE VI. *Counts and measurements (in mm.) of specimens of Hypsiglena torquata ochrorhyncha.*

CAS NUMBER	91254	91323	91372	91408	91418	91419	91438
Sex	female	male	male	male	male	female	female
Ventrals	174	170	163	164	175	178	179
Subcaudals	45	51	51	54	55	46	48
Snout-vent length	275	260	270	246	270	315	350
Tail length	46	55	54	52	55	53	62
Body blotches	69	66	62	67	48 ⁹⁾	65	56
Tail blotches	21	22	23	34(?)	24	21	22

⁹⁾ Some blotches on posterior portion of body fused together.



FIGURE 11. Station 75. El Saltillo Arroyo, near water falls. Though only a trickle of water was flowing from a small spring, the dense growth clearly indicates underground water was available. *Eridiphas slevini* was taken in this general area. Also, *Bup punctatus* adults were quite common, but all were found burrowed into the sandy banks of the arroyo channel.

Masticophis flagellum piceus Cope.

MATERIAL COLLECTED (2). Station 7 (CAS 91243); Station 74 (CAS 91478).

REMARKS. Three individuals of this snake were seen, but only 2 were collected. Of the 3, 2 young, 1 red phase and 1 black phase, were seen late in the afternoon; only 1 was taken. Both were very active on the leeward side of sand dunes, 1 at Station 7, at Bahia de los Muertos, 1 at Station 57, 4.9 miles southeast of Pescadero. The large specimen, taken at Station 74, was found coiled up inside of a dead cardon log, the cavity of which had decayed. It was lethargic and made no attempt to move away when its shelter was torn apart.

Belding obtained three specimens in the winter of 1882, but whether they were taken while moving about or were found in hiding is not known.

Natrix valida celaeno Cope.

MATERIAL COLLECTED (1). Station 70 (CAS 91459).

REMARKS. Previously recorded as being active during the winter months by Yarrow (1882, p. 133) for 5 specimens obtained by Belding in February, 1882, near La Paz and, by Van Denburgh (1895a, p. 153) for a specimen taken in November, 1893, it is evident that relatively few individuals are about during those months compared to their abundance during the spring and autumn.

The 1 specimen collected in 1958-1959 was found in a concrete irrigation ditch leading from the Miraflores reservoir through the village of Boca de la Sierra. It is an adult male 515 mm. in snout-vent length, with a tail length of 175 mm. It has 145 ventrals, 79 subcaudals and 19 scale rows at midbody. Narrow, light lateral stripes are visible, but are not conspicuous.

Phyllorhynchus decurtatus decurtatus Cope.

MATERIAL COLLECTED (1). Station 20 (CAS 91270).

REMARKS. Mr. Hugh Leech found the specimen reported on here under a dead carbon log which was lying on the compacted sandy soil of an arroyo channel. It is an adult male (snout-vent length 330 mm., tail length 58 mm.). There are 21 rectangular dorsal blotches, two pairs of which, though quite distinct, are obviously fragments of a single pair. There are 5 caudal blotches. The margins of all blotches are darker than their centers. It has 157 ventrals, 36 subcaudals, and dorsal scales in 21-19-17 rows.

Salvadora hexalepis klauberi Bogert.

MATERIAL COLLECTED (3). Station 1 (CAS 91208); Station 19 (CAS 91266); Station 41 (CAS 91373).

REMARKS. Two of the three specimens collected were found dead on the road, the third was taken crossing the road. All were found early in the morning and were very active. Two other individuals were seen during this winter period, both very active, but disappeared into dense bushes along side the road.

TABLE VII. *Counts and measurements (in mm.) for specimens of Salvadora h. klauberi.*

	CAS 91208	CAS 91266	CAS 91373
Sex	female	female	male
Ventrals	205	196	200
Subcaudals	...(10)	90	91
Dorsal scale rows	21-17-15	21-17-15	23-17-13
Upper labials	10-10	9-9	9-9
Lower labials	?-11	11-11	11-12
Snout-vent length	640	538	795
Tail length	...(10)	195	250

¹⁰⁾ Tail damaged.

Tantilla planiceps Blainville.

MATERIAL COLLECTED (2). Station 50 (CAS 91394); Station 73 (CAS 91477).

REMARKS. Van Denburgh (1896, p. 1008) reported on one of these snakes collected at San Jose del Cabo in November of 1895. Both of the specimens obtained in January, 1959, were found by digging into rocky banks along the Arroyo San Bartolo and near Triumpho. The head in CAS 91394 is light charcoal black, and there is a conspicuous creamy white collar, one scale row wide, on the neck separating the head color from that of the body. The total length of CAS 91477 is 252 mm.; this is greater than that recorded by Blanchard (1938, p. 371) for this species. Though the ventral counts fall within the range given by Blanchard (134-140), the subcaudal count of CAS 91477 of 48 is lower than the range cited by Hartweg (1944, p. 3) of 56-60. We believe that *T. planiceps* is more closely allied to *T. eiseni* of southern California than has been previously suspected.

TABLE VIII. *Counts and measurements (in mm.) of specimens of*
Tantilla planiceps.

	CAS 91394	CAS 91477
Sex	female	male
Ventrals	139	140
Subcaudals	60	48
Dorsal scale rows	15	15
Snout-vent length	126	200
Tail length	42	52

CHECK LIST OF KNOWN AMPHIBIANS AND
REPTILES INHABITING THE CAPE REGION,
BAJA CALIFORNIA SUR, MEXICO

AMPHIBIANS

FROGS

Bufonidae

Bufo punctatus Baird and Girard

Hylidae

Hyla regilla Baird and Girard

Pelobatidae

Scaphiopus couchii Baird

REPTILES

AMPHISBAENIDS

Amphisbaenidae

Bipes biporus Cope

LIZARDS

Anguidae

Gerrhonotus paucicarinatus Fitch

Gekkonidae

Coleonyx variegatus peninsularis Klauber*Phyllodactylus unctus* (Cope)*Phyllodactylus xanti* Cope

Iguanidae

Callisaurus draconoides draconoides Blainville*Crotophytus wislizeni copei* Yarrow*Ctenosaura hemilopha* Cope*Dipsosaurus dorsalis lucasensis* Van Denburgh*Petrosaurus thalassinus thalassinus* (Cope)*Phrynosoma coronatum coronatum* (Blainville)*Sauromalus australis* Shaw*Sceloporus magister zosteromus* Cope*Sceloporus orcutti licki* Van Denburgh*Urosaurus nigricaudus* (Cope)*Uta stansburiana elegans* Yarrow

Scincidae

Eumeces lagunensis (Van Denburgh)

Teiidae

Cnemidophorus hyperythrus hyperythrus Cope*Cnemidophorus maximus* Cope*Cnemidophorus tigris rubidus* Cope

Xantusiidae

Xantusia gilberti Van Denburgh

SNAKES

Boidae

Lichanura trivirgata Cope

Colubridae

Arizona elegans pacata Klauber*Chilomeniscus cinctus* Cope*Chilomeniscus stramineus stramineus* Cope*Elaphe rosaliae* (Mocquard)*Eridiphas slevini* (Tanner)*Hypsiglena ochrorhyncha ochrorhyncha* Cope*Lampropeltis getulus conjuncta* Cope

Lampropeltis nitida Van Denburgh
Masticophis flagellum piceus (Cope)
Natrix valida celaeno Cope
Phyllorhynchus decurtatus decurtatus (Cope)
Pituophis vertebralis (Blainville)
Salvadora hexalepis klauberi Bogert
Tantilla planiceps (Blainville)
Trimorphodon lyrophanes (Cope)

Crotalidae

Crotalus enyo enyo (Cope)
Crotalus mitchellii mitchellii (Cope)
Crotalus ruber lucasensis Van Denburgh

Leptotyphlopidae

Leptotyphlops humilis slevini Klauber

TURTLES

Emydidae

Pseudemys scripta nebulosa (Van Denburgh)

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